

## Sequence Listing

SEQ ID NO:1

Met Ala His Ala Gly Arg Thr Gly Tyr Asp Asn Arg Glu Ile Val Met  
1 5 10 15

Lys Tyr Ile His Tyr Lys Leu Ser Gln Arg Gly Tyr Glu Trp Asp Ala  
20 25 30

Gly Asp Val Gly Ala Ala Pro Pro Gly Ala Ala Pro Ala Pro Gly Ile  
35 40 45

Phe Ser Ser Gln Pro Gly His Thr Pro His Pro Ala Ala Ser Arg Asp  
50 55 60

Pro Val Ala Arg Thr Ser Pro Leu Gln Thr Pro Ala Ala Pro Gly Ala  
65 70 75

Ala Ala Gly Pro Ala Leu Ser Pro Val Pro Pro Val Val His Leu Ala  
85 90 95

Leu Arg Gln Ala Gly Asp Asp Phe Ser Arg Arg Tyr Arg Gly Asp Phe  
100 105 110

Ala Glu Met Ser Ser Gln Leu His Leu Thr Pro Phe Thr Ala Arg Gly  
115 120 125

Arg Phe Ala Thr Val Val Glu Glu Leu Phe Arg Asp Gly Val Asn Trp  
130 135 140

Gly Arg Ile Val Ala Phe Phe Glu Phe Gly Gly Val Met Cys Val Glu  
145 150 155

Ser Val Asn Arg Glu Met Ser Pro Leu Val Asp Asn Ile Ala Leu Trp  
165 170 175

Met Thr Glu Tyr Leu Asn Arg His Leu His Thr Trp Ile Gln Asp Asn  
180 185 190

Gly Gly Trp Asp Ala Phe Val Glu Leu Tyr Gly Pro Ser Met Arg Pro  
195 200 205

Leu Phe Asp Phe Ser Trp Leu Ser Leu Lys Thr Leu Leu Ser Leu Ala  
210 215 220

Leu Val Gly Ala Cys Ile Thr Leu Gly Ala Tyr Leu Ser His Lys  
225 230 235

SEQ ID NO:2

Met Ala His Ala Gly Arg Thr Gly Tyr Asp Asn Arg Glu Ile Val Met  
1 5 10 15

Lys Tyr Ile His Tyr Lys Leu Ser Gln Arg Gly Tyr Glu Trp Asp Ala  
 20            25            30

Gly Asp Val Gly Ala Ala Pro Pro Gly Ala Ala Pro Ala Pro Gly Ile  
 35            40            45

Phe Ser Ser Gln Pro Gly His Thr Pro His Pro Ala Ala Ser Arg Asp  
 50            55            60

Pro Val Ala Arg Thr Ser Pro Leu Gln Thr Pro Ala Ala Pro Gly Ala  
 65            70            75

Ala Ala Gly Pro Ala Leu Ser Pro Val Pro Pro Val Val His Leu Ala  
 85            90            95

Leu Arg Gln Ala Gly Asp Asp Phe Ser Arg Arg Tyr Arg Gly Asp Phe  
 100           105           110

Ala Glu Met Ser Ser Gln Leu His Leu Thr Pro Phe Thr Ala Arg Gly  
 115           120           125

Arg Phe Ala Thr Val Val Glu Glu Leu Phe Arg Asp Gly Val Asn Trp  
 130           135           140

Gly Arg Ile Val Ala Phe Phe Glu Phe Gly Gly Val Met Cys Val Glu  
 145           150           155

Ser Val Asn Arg Glu Met Ser Pro Leu Val Asp Asn Ile Ala Leu Trp  
 165           170           175

Met Thr Glu Tyr Leu Asn Arg His Leu His Thr Trp Ile Gln Asp Asn  
 180           185           190

Gly Gly Trp Val Gly Ala Ser Gly Asp Val Ser Leu Gly  
 195           200           205

Tsujimoto,Y. and Croce,C.M. TITLE Analysis of the structure, transcripts, and protein products of bcl-2, the gene involved in human follicular lymphoma JOURNAL Proc. Natl. Acad. Sci. U.S.A. 83 (14), 5214-5218 (1986)

SEQ ID NO:3

Met Ala His Ala Gly Arg Thr Gly Tyr Asp Asn Arg Glu Ile Val Met  
 1            5            10            15

Lys Tyr Ile His Tyr Lys Leu Ser Gln Arg Gly Tyr Glu Trp Asp Ala  
 20            25            30

Gly Asp Val Gly Ala Ala Pro Pro Gly Ala Ala Pro Ala Pro Gly Ile  
 35            40            45

Phe Ser Ser Gln Pro Gly His Thr Pro His Pro Ala Ala Ser Arg Asp

50	55	60
Pro Val Ala Arg Thr Ser Pro Leu Gln Thr Pro Ala Ala Pro Gly Ala		
65	70	75
Ala Ala Gly Pro Ala Leu Ser Pro Val Pro Pro Val Val His Leu Ala		
85	90	95
Leu Arg Gln Ala Gly Asp Asp Phe Ser Arg Arg Tyr Arg Gly Asp Phe		
100	105	110
Ala Glu Met Ser Ser Gln Leu His Leu Thr Pro Phe Thr Ala Arg Gly		
115	120	125
Arg Phe Ala Thr Val Val Glu Glu Leu Phe Arg Asp Gly Val Asn Trp		
130	135	140
Gly Arg Ile Val Ala Phe Phe Glu Phe Gly Gly Val Met Cys Val Glu		
145	150	155
Ser Val Asn Arg Glu Met Ser Pro Leu Val Asp Asn Ile Ala Leu Trp		
165	170	175
Met Thr Glu Tyr Leu Asn Arg His Leu His Thr Trp Ile Gln Asp Asn		
180	185	190
Gly Gly Trp Asp Ala Phe Val Glu Leu Tyr Gly Pro Ser Met Arg Pro		
195	200	205
Leu Phe Asp Phe Ser Trp Leu Ser Leu Lys Thr Leu Leu Ser Leu Ala		
210	215	220
Leu Val Gly Ala Cys Ile Thr Leu Gly Ala Tyr Leu Ser His Lys		
225	230	235

Tsujimoto,Y. and Croce,C.M. TITLE Molecular genetics of human B-cell neoplasia  
 JOURNAL Curr. Top. Microbiol. Immunol. 132, 183-192 (1986)

SEQ ID NO:4

Asp Met Phe Ser Asp Gly Asn Phe Asn Trp Val Arg Val Val Ala Leu  
 1           5           10           15

Phe Tyr Phe Ala Ser  
 20

Meijerink,J.P., Smetsers,T.F., Sloetjes,A.W., Linders,E.H. and Mensink,E.J. TITLE Bax mutations in cell lines derived from hematological malignancies JOURNAL Leukemia 9 (11), 1828-1832 (1995)

SEQ ID NO:5

Met Asp Glu Asp Val Leu Pro Gly Glu Val Leu Ala Ile Glu Gly Ile  
 1            5            10            15  
  
 Phe Met Ala Cys Gly Leu Asn Glu Pro Glu Tyr Leu Tyr His Pro Leu  
 20            25            30  
  
 Leu Ser Pro Ile Lys Leu Tyr Ile Thr Gly Leu Met Arg Asp Lys Glu  
 35            40            45  
  
 Ser Leu Phe Glu Ala Met Leu Ala Asn Val Arg Phe His Ser Thr Thr  
 50            55            60  
  
 Gly Ile Asn Gln Leu Gly Leu Ser Met Leu Gln Val Ser Gly Asp Gly  
 65            70            75  
  
 Asn Met Asn Trp Gly Arg Ala Leu Ala Ile Leu Thr Phe Gly Ser Phe  
 85            90            95  
  
 Val Ala Gln Lys Leu Ser Asn Glu Pro His Leu Arg Asp Phe Ala Leu  
 100            105            110  
  
 Ala Val Leu Pro Val Tyr Ala Tyr Glu Ala Ile Gly Pro Gln Trp Phe  
 115            120            125  
  
 Arg Ala Arg Gly Gly Trp Arg Gly Leu Lys Ala Tyr Cys Thr Gln Val  
 130            135            140  
  
 Leu Thr Arg Arg Arg Gly Arg Arg Met Thr Ala Leu Leu Gly Scr Ile  
 145            150            155  
  
 Ala Leu Leu Ala Thr Ile Leu Ala Ala Val Ala Met Ser Arg Arg  
 165            170            175

Neipel,F., Albrecht,J.C. and Fleckenstein,B. TITLE Cell-homologous genes in the Kaposi's sarcoma-associated rhadinovirus human herpesvirus 8: determinants of its pathogenicity?  
 JOURNAL J. Virol. 71 (6), 4187-4192 (1997)

SEQ ID NO:6

Met Ala Ser Gly Gln Gly Pro Gly Pro Pro Arg Gln Glu Cys Gly Glu  
 1            5            10            15  
  
 Pro Ala Leu Pro Ser Ala Ser Glu Glu Gln Val Ala Gln Asp Thr Glu  
 20            25            30  
  
 Glu Val Phe Arg Ser Tyr Val Phe Tyr Arg His Gln Gln Glu Gln Glu  
 35            40            45  
  
 Ala Glu Gly Val Ala Ala Pro Ala Asp Pro Glu Met Val Thr Leu Pro  
 50            55            60  
  
 Leu Gln Pro Ser Ser Thr Met Gly Gln Val Gly Arg Gln Leu Ala Ile  
 65            70            75

Ile Gly Asp Asp Ile Asn Arg Arg Tyr Asp Ser Glu Phe Gln Thr Met  
 85                90                95

Leu Gln His Leu Gln Pro Thr Ala Glu Asn Ala Tyr Glu Tyr Phe Thr  
 100              105              110

Lys Ile Ala Thr Ser Leu Phe Glu Ser Gly Ile Asn Trp Gly Arg Val  
 115              120              125

Val Ala Leu Leu Gly Phe Gly Tyr Arg Leu Ala Leu His Val Tyr Gln  
 130              135              140

His Gly Leu Thr Gly Phe Leu Gly Gln Val Thr Arg Phe Val Val Asp  
 145              150              155

Phe Met Leu His His Cys Ile Ala Arg Trp Ile Ala Gln Arg Gly Gly  
 165              170              175

Trp Val Ala Ala Leu Asn Leu Gly Asn Gly Pro Ile Leu Asn Val Leu  
 180              185              190

Val Val Leu Gly Val Val Leu Leu Gly Gln Phe Val Val Arg Arg Phe  
 195              200              205

Phe Lys Ser  
 210

Kiefer,M.C., Brauer,M.J., Powers,V.C., Wu,J.J., Umansky,S.R., Tomei,L.D. and Barr,P.J.  
 TITLE Modulation of apoptosis by the widely distributed Bcl-2 homologue Bak JOURNAL  
 Nature 374 (6524), 736-739 (1995)

SEQ ID NO:7

Met Ser Gln Ser Asn Arg Glu Leu Val Val Asp Phe Leu Ser Tyr Lys  
 1                5                10                15

Leu Ser Gln Lys Gly Tyr Ser Trp Ser Gln Phe Ser Asp Val Glu Glu  
 20              25              30

Asn Arg Thr Glu Ala Pro Glu Gly Thr Glu Ser Glu Met Glu Thr Pro  
 35              40              45

Ser Ala Ile Asn Gly Asn Pro Ser Trp His Leu Ala Asp Ser Pro Ala  
 50              55              60

Val Asn Gly Ala Thr Gly His Ser Ser Ser Leu Asp Ala Arg Glu Val  
 65              70              75

Ile Pro Met Ala Ala Val Lys Gln Ala Leu Arg Glu Ala Gly Asp Glu  
 85              90              95

Phe Glu Leu Arg Tyr Arg Arg Ala Phe Ser Asp Leu Thr Ser Gln Leu  
 100              105              110

His Ile Thr Pro Gly Thr Ala Tyr Gln Ser Phe Glu Gln Asp Thr Phe  
 115            120            125

Val Glu Leu Tyr Gly Asn Asn Ala Ala Ala Glu Ser Arg Lys Gly Gln  
 130            135            140

Glu Arg Phe Asn Arg Trp Phe Leu Thr Gly Met Thr Val Ala Gly Val  
 145            150            155

Val Leu Leu Gly Ser Leu Phe Ser Arg Lys  
 165            170

Boise,L.H., Gonzalez-Garcia,M., Postema,C.E., Ding,L., Lindsten,T., Turka,L.A., Mao,X.,  
 Nunez,G. and Thompson,C.B. TITLE bcl-x, a bcl-2-related gene that functions as a dominant  
 regulator of apoptotic cell death JOURNAL Cell 74 (4), 597-608 (1993)  
 SEQ ID NO:8

Met Ser Glu Val Arg Pro Leu Ser Arg Asp Ile Leu Met Glu Thr Leu  
 1            5            10            15

Leu Tyr Glu Gln Leu Leu Glu Pro Pro Thr Met Glu Val Leu Gly Met  
 20            25            30

Thr Asp Ser Glu Glu Asp Leu Asp Pro Met Glu Asp Phe Asp Ser Leu  
 35            40            45

Glu Cys Met Glu Gly Ser Asp Ala Leu Ala Leu Arg Leu Ala Cys Ile  
 50            55            60

Gly Asp Glu Met Asp Val Ser Leu Arg Ala Pro Arg Leu Ala Gln Leu  
 65            70            75

Ser Glu Val Ala Met His Ser Leu Gly Leu Ala Phe Ile Tyr Asp Gln  
 85            90            95

Thr Glu Asp Ile Arg Asp Val Leu Arg Ser Phe Met Asp Gly Phe Thr  
 100            105            110

Thr Leu Lys Glu Asn Ile Met Arg Phe Trp Arg Ser Pro Asn Pro Gly  
 115            120            125

Ser Trp Val Ser Cys Glu Gln Val Leu Ala Leu Leu Leu Leu  
 130            135            140

Ala Leu Leu Leu Pro Leu Leu Ser Gly Gly Leu His Leu Leu Leu Lys  
 145            150            155

Met Asp Gly Ser Gly Glu Gln Pro Arg Gly Gly Pro Thr Ser Ser  
 1            5            10            15

Glu Gln Ile Met Lys Thr Gly Ala Leu Leu Gln Gly Phe Ile Gln  
 20            25            30

Asp Arg Ala Gly Arg Met Gly Gly Glu Ala Pro Glu Leu Ala Leu Asp  
 35            40            45

Pro Val Pro Gln Asp Ala Ser Thr Lys Lys Leu Ser Glu Cys Leu Lys  
 50            55            60

Arg Ile Gly Asp Glu Leu Asp Ser Asn Met Glu Leu Gln Arg Met Ile  
 65            70            75

Ala Ala Val Asp Thr Asp Ser Pro Arg Glu Val Phe Phe Arg Val Ala  
 85            90            95

Ala Asp Met Phe Ser Asp Gly Asn Phe Asn Trp Gly Arg Val Val Ala  
 100           105           110

Leu Phe Tyr Phe Ala Ser Lys Leu Val Leu Lys Ala Leu Cys Thr Lys  
 115           120           125

Val Pro Glu Leu Ile Arg Thr Ile Met Gly Trp Thr Leu Asp Phe Leu  
 130           135           140

Arg Glu Arg Leu Leu Gly Trp Ile Gln Asp Gln Gly Gly Trp Val Arg  
 145           150           155

Leu Leu Lys Pro Pro His Pro His Arg Ala Leu Thr Thr Ala Pro  
 165           170           175

Ala Pro Pro Ser Leu Pro Pro Ala Thr Pro Leu Gly Pro Trp Ala Phe  
 180           185           190

Trp Ser Arg Ser Gln Trp Cys Pro Leu Pro Ile Phe Arg Ser Ser Asp  
 195           200           205

Val Val Tyr Asn Ala Phe Ser Leu Arg Val  
 210           215

Oltvai,Z.N., Milliman,C.L. and Korsmeyer,S.J. TITLE Bcl-2 heterodimerizes in vivo with a conserved homolog, Bax, that accelerates programmed cell death JOURNAL Cell 74 (4), 609-619 (1993)

SEQ ID NO:9

Met Ala His Ala Gly Arg Thr Gly Tyr Asp Asn Arg Glu Ile Val Met  
 1            5            10            15

Lys Tyr Ile His Tyr Lys Leu Ser Gln Arg Gly Tyr Glu Trp Asp Ala  
 20           25            30

Gly Asp Val Gly Ala Ala Pro Pro Gly Ala Ala Pro Ala Pro Gly Ile  
 35            40            45

Phe Ser Ser Gln Pro Gly His Thr Pro His Pro Ala Ala Ser Arg Asp  
 50            55            60

Pro Val Ala Arg Thr Ser Pro Leu Gln Thr Pro Ala Ala Pro Gly Ala  
 65 70 75  
 Ala Ala Gly Pro Ala Leu Ser Pro Val Pro Pro Val Val His Leu Thr  
 85 90 95  
 Leu Arg Gln Ala Gly Asp Asp Phe Ser Arg Arg Tyr Arg Arg Asp Phe  
 100 105 110  
 Ala Glu Met Ser Ser Gln Leu His Leu Thr Pro Phe Thr Ala Arg Gly  
 115 120 125  
 Arg Phe Ala Thr Val Val Glu Glu Leu Phe Arg Asp Gly Val Asn Trp  
 130 135 140  
 Gly Arg Ile Val Ala Phe Phe Glu Phe Gly Gly Val Met Cys Val Glu  
 145 150 155  
 Ser Val Asn Arg Glu Met Ser Pro Leu Val Asp Asn Ile Ala Leu Trp  
 165 170 175  
 Met Thr Glu Tyr Leu Asn Arg His Leu His Thr Trp Ile Gln Asp Asn  
 180 185 190  
 Gly Gly Trp Asp Ala Phe Val Glu Leu Tyr Gly Pro Ser Met Arg Pro  
 195 200 205  
 Leu Phe Asp Phe Ser Trp Leu Ser Leu Lys Thr Leu Leu Ser Leu Ala  
 210 215 220  
 Leu Val Gly Ala Cys Ile Thr Leu Gly Ala Tyr Leu Gly His Lys  
 225 230

Hua,C., Zorn,S., Jensen,J.P., Coupland,R.W., Ko,H.S., Wright,J.J. and Bakhshi,A. TITLE  
 Consequences of the t(14;18) chromosomal translocation in follicular lymphoma: deregulated expression of a chimeric and mutated BCL-2 gene JOURNAL Oncogene Res. 2 (3), 263-275 (1988)

SEQ ID NO:10

Met Ala His Ala Gly Arg Thr Gly Tyr Asp Asn Arg Glu Ile Val Met  
 1 5 10 15  
 Lys Tyr Ile His Tyr Lys Leu Ser Gln Arg Gly Tyr Glu Trp Asp Ala  
 20 25 30  
 Gly Asp Val Gly Ala Ala Pro Pro Gly Ala Ala Pro Ala Pro Gly Ile  
 35 40 45  
 Phe Ser Ser Gln Pro Gly His Thr Pro His Pro Ala Ala Ser Arg Asp  
 50 55 60

Pro Val Ala Arg Thr Ser Pro Leu Gln Thr Pro Ala Ala Pro Gly Ala  
     65                70                75  
 Ala Ala Gly Pro Ala Leu Ser Pro Val Pro Pro Val Val His Leu Ala  
     85                90                95  
 Leu Arg Gln Ala Gly Asp Asp Phe Ser Arg Arg Tyr Arg Gly Asp Phe  
     100              105              110  
 Ala Glu Met Ser Ser Gln Leu His Leu Thr Pro Phe Thr Ala Arg Gly  
     115              120              125  
 Arg Phe Ala Thr Val Val Glu Glu Leu Phe Arg Asp Gly Val Asn Trp  
     130              135              140  
 Gly Arg Ile Val Ala Phe Phe Glu Phe Gly Gly Val Met Cys Val Glu  
     145              150              155  
 Ser Val Asn Arg Glu Met Ser Pro Leu Val Asp Asn Ile Ala Leu Trp  
     165              170              175  
 Met Thr Glu Tyr Leu Asn Arg His Leu His Thr Trp Ile Gln Asp Asn  
     180              185              190  
 Gly Gly Trp Val Gly Ala Ser Gly Asp Val Ser Leu Gly  
     195              200              205

Tsujimoto, Y. and Croce, C.M. TITLE Analysis of the structure, transcripts, and protein products of bcl-2, the gene involved in human follicular lymphoma JOURNAL Proc. Natl. Acad. Sci. U.S.A. 83 (14), 5214-5218 (1986)

SEQ ID NO:11

Leu Ala Gln Arg Gly Gly Ala Arg Arg Pro Arg Gly Asp Arg Glu Arg  
     1            5            10            15  
 Leu Gly Ser Arg Leu Arg Ala Leu Arg Pro Gly Arg Glu Pro Arg Gln  
     20            25            30  
 Ser Glu Pro Pro Ala Gln Arg Gly Pro Pro Pro Ser Arg Arg Pro Pro  
     35            40            45  
 Ala Arg Ser Thr Ala Ser Gly His Asp Arg Pro Thr Arg Gly Ala Ala  
     50            55            60  
 Ala Gly Ala Arg Arg Pro Arg Met Lys Lys Lys Thr Arg Arg Arg Ser  
     65            70            75            80  
 Thr Arg Ser Glu Glu Leu Thr Arg Ser Glu Glu Leu Thr Leu Ser Glu  
     85            90            95  
 Glu Ala Thr Trp Ser Glu Glu Ala Thr Gln Ser Glu Glu Ala Thr Gln  
     100           105            110

Gly Glu Glu Met Asn Arg Ser Gln Glu Val Thr Arg Asp Glu Glu Ser  
115 120 125

Thr Arg Ser Glu Glu Val Thr Arg Glu Glu Met Ala Ala Ala Gly Leu  
130 135 140

Thr Val Thr Val Thr His Ser Asn Glu Lys His Asp Leu His Val Thr  
145 150 155

Ser Gln Gln Gly Ser Ser Glu Pro Val Val Gln Asp Leu Ala Gln Val  
165 170 175

Val Glu Glu Val Ile Gly Val Pro Gln Ser Phe Gln Lys Leu Ile Phe  
180 185 190

Lys Gly Lys Ser Leu Lys Glu Met Glu Thr Pro Leu Ser Ala Leu Gly  
195 200 205

Ile Gln Asp Gly Cys Arg Val Met Leu Ile Gly Lys Lys Asn Ser Pro  
210 215 220

Gln Glu Glu Val Glu Leu Lys Leu Lys His Leu Glu Lys Ser Val  
225 230 235

Glu Lys Ile Ala Asp Gln Leu Glu Leu Asn Lys Glu Leu Thr Gly  
245 250 255

Ile Gln Gln Gly Phe Leu Pro Lys Asp Leu Gln Ala Glu Ala Leu Cys  
260 265 270

Lys Leu Asp Arg Arg Val Lys Ala Thr Ile Glu Gln Phe Met Lys Ile  
275 280 285

Leu Glu Glu Ile Asp Thr Leu Ile Leu Pro Glu Asn Phe Lys Asp Ser  
290 295 300

Arg Leu Lys Arg Lys Gly Leu Val Lys Lys Val Gln Ala Phe Leu Ala  
305 310 315

Glu Cys Asp Thr Val Glu Gln Asn Ile Cys Gln Glu Thr Glu Arg Leu  
325 330 335

Gln Ser Thr Asn Phe Ala Leu Ala Glu  
340 345

Takayama,S., Krajewski,S., Krajewska,M., Kitada,S., Zapata,J.M., Kochel,K., Knee,D., Scudiero,D., Tudor,G., Miller,G.J., Miyashita,T., Yamada,M. and Reed,J.C. TITLE Expression and location of Hsp70/Hsc-binding anti-apoptotic protein BAG-1 and its variants in normal tissues and tumor cell lines JOURNAL Cancer Res. 58 (14), 3116-3131 (1998)

SEQ ID NO:12

FEATURES Location/Qualifiers source 1..239 /organism="Homo sapiens"  
 /db\_xref="taxon:9606" 1..239 Protein 1..239 /product="APOPTOSIS REGULATOR BCL-2"  
 Region 7 /region\_name="Variant" /note="T -> S. /FTId=VAR\_000827." Region 10..30  
 /region\_name="Domain" /note="BH4." Region 48 /region\_name="Conflict" /note="I -> F (IN  
 REF. 4)." Region 59 /region\_name="Conflict" /note="P -> T (IN REF. 3)." Region 59  
 /region\_name="Variant" /note="P -> S (IN NON-HODGKINS-LYMPHOMA; SOMATIC  
 MUTATION). /FTId=VAR\_000828." Region 93 /region\_name="Variant" /note="V -> I (IN  
 NON-HODGKINS-LYMPHOMA; SOMATIC MUTATION). /FTId=VAR\_000829." Region  
 93..107 /region\_name="Domain" /note="BH3." Region 117 /region\_name="Conflict" /note="S  
 -> R (IN REF. 3)." Region 129 /region\_name="Conflict" /note="R -> C (IN REF. 4)." Region  
 136..155 /region\_name="Domain" /note="BH1." Site 145 /site\_type="mutagenized" /note="G  
 ->A: NO HETERODIMERIZATION WITH BAX, AND LOSS OF ANTI-APOPTOTIC  
 ACTIVITY." Region 187..202 /region\_name="Domain" /note="BH2." Site 188  
 /site\_type="mutagenized" /note="W->A: NO HETERODIMERIZATION WITH BAX, AND  
 LOSS OF ANTI-APOPTOTIC ACTIVITY." Region 196..239 /region\_name="Splicing  
 variant" /note="DAFVELYGPSMRPLFDFWLSSLKTLALVGACITLGAYL GHK ->  
 VGASGDVS (IN ISOFORM BETA)." Region 212..233 /region\_name="Transmembrane  
 region" /note="POTENTIAL." ORIGIN 1

Met Ala His Ala Gly Arg Thr Gly Tyr Asp Asn Arg Glu Ile Val Met  
 1           5           10           15

Lys Tyr Ile His Tyr Lys Leu Ser Gln Arg Gly Tyr Glu Trp Asp Ala  
 20           25           30

Gly Asp Val Gly Ala Ala Pro Pro Gly Ala Ala Pro Ala Pro Gly Ile  
 35           40           45

Phe Ser Ser Gln Pro Gly His Thr Pro His Pro Ala Ala Ser Arg Asp  
 50           55           60

Pro Val Ala Arg Thr Ser Pro Leu Gln Thr Pro Ala Ala Pro Gly Ala  
 65           70           75

Ala Ala Gly Pro Ala Leu Ser Pro Val Pro Val Val His Leu Thr  
 85           90           95

Leu Arg Gln Ala Gly Asp Asp Phe Ser Arg Arg Tyr Arg Arg Asp Phe  
 100          105          110

Ala Glu Met Ser Ser Gln Leu His Leu Thr Pro Phe Thr Ala Arg Gly  
 115          120          125

Arg Phe Ala Thr Val Val Glu Leu Phe Arg Asp Gly Val Asn Trp  
 130          135          140

Gly Arg Ile Val Ala Phe Phe Glu Phe Gly Val Met Cys Val Glu  
 145          150          155

Ser Val Asn Arg Glu Met Ser Pro Leu Val Asp Asn Ile Ala Leu Trp  
 165          170          175

Met Thr Glu Tyr Leu Asn Arg His Leu His Thr Trp Ile Gln Asp Asn  
 180          185          190

Gly Gly Trp Asp Ala Phe Val Glu Leu Tyr Gly Pro Ser Met Arg Pro  
 195            200            205

Leu Phe Asp Phe Ser Trp Leu Ser Leu Lys Thr Leu Leu Ser Leu Ala  
 210            215            220

Leu Val Gly Ala Cys Ile Thr Leu Gly Ala Tyr Leu Gly His Lys  
 225            230

7 (residues 1 to 239) AUTHORS Yin,X.M., Oltvai,Z.N. and Korsmeyer,S.J. TITLE BH1 and BH2 domains of Bcl-2 are required for inhibition of apoptosis and heterodimerization with Bax JOURNAL Nature 369 (6478), 321-323 (1994)

SEQ ID NO:13

FEATURES Location/Qualifiers source 1..195 /organism="Homo sapiens"  
 /db\_xref="taxon:9606" /chromosome="22" /map="22q11.1" Protein 1..195 /product="BH3 interacting domain death agonist" CDS 1..195 /gene="BID" /db\_xref="LocusID:637" /db\_xref="MIM:601997" /coded\_by="NM\_001196.1:141..728" ORIGIN 1

Met Asp Cys Glu Val Asn Asn Gly Ser Ser Leu Arg Asp Glu Cys Ile  
 1            5            10            15

Thr Asn Leu Leu Val Phe Gly Phe Leu Gln Ser Cys Ser Asp Asn Ser  
 20            25            30

Phe Arg Arg Glu Leu Asp Ala Leu Gly His Glu Leu Pro Val Leu Ala  
 35            40            45

Pro Gln Trp Glu Gly Tyr Asp Glu Leu Gln Thr Asp Gly Asn Arg Ser  
 50            55            60

Ser His Ser Arg Leu Gly Arg Ile Glu Ala Asp Ser Glu Ser Gln Glu  
 65            70            75

Asp Ile Ile Arg Asn Ile Ala Arg His Leu Ala Gln Val Gly Asp Ser  
 85            90            95

Met Asp Arg Ser Ile Pro Pro Gly Leu Val Asn Gly Leu Ala Leu Gln  
 100            105            110

Leu Arg Asn Thr Ser Arg Ser Glu Glu Asp Arg Asn Arg Asp Leu Ala  
 115            120            125

Thr Ala Leu Glu Gln Leu Leu Gln Ala Tyr Pro Arg Asp Met Glu Lys  
 130            135            140

Glu Lys Thr Met Leu Val Leu Ala Leu Leu Ala Lys Lys Val Ala  
 145            150            155

Ser His Thr Pro Ser Leu Leu Arg Asp Val Phe His Thr Thr Val Asn

165            170            175

Phe Ile Asn Gln Asn Leu Arg Thr Tyr Val Arg Ser Leu Ala Arg Asn  
180            185            190

Gly Met Asp  
195

5 (residues 1 to 195) AUTHORS Wang,K., Yin,X.M., Copeland,N.G., Gilbert,D.J., Jenkins,N.A., Keck,C.L., Zimonjic,D.B., Popescu,N.C. and Korsmeyer,S.J. TITLE BID, a proapoptotic BCL-2 family member, is localized to mouse chromosome 6 and human chromosome 22q11 JOURNAL Genomics 53 (2), 235-238 (1998).